

80 Application of meteorology.

- 81 Weather forecasting: basis, (.1) Local, (.2) Collected observations.
- 82 Agricultural meteorology. Climate and crops. Phenology.
- 83 Hydrology.
- 84 Manufacturing and business aspects of the weather.
- 85 Land transportation and the weather.
- 86 Marine meteorology. Oceanography.
- 87 Aeronautical meteorology.
- 88 Military meteorology.
- 89 Physiological effects of weather and climate on man.

90 Climatology.

- 91 General climatology: the climatic elements; climate in relation to latitude, surface covering, altitude, and exposure.
- 92 Climatography: climates of the world and their effects on the people. [Divided geographically by continents or natural regions.]
- 93 Changes of climate in historical and geological time.

BIBLIOGRAPHY.

RECENT ADDITIONS TO THE WEATHER BUREAU LIBRARY.

C. FITZHUGH TALMAN, Professor in Charge of Library.

The following have been selected from among the titles of books recently received as representing those most likely to be useful to Weather Bureau officials in their meteorological work and studies:

Aitken, John.

Ground-ice. diagr. 27 $\frac{1}{2}$ cm. (Reprinted from Journal of the Scottish meteorological society. 3d ser. vol. 18, no. 35. 1918. p. 13-18.)

Ångström, Anders.

Determination of the constants of pyrgeometers. Stockholm. 1918. cover-title, 16 p. 3 tables. diagrs. 22 cm. (Arkiv för matematik, astronomi och fysik . . . Band 13. No. 8. Meddelande från Uppsala universitets fysiska institution.)

On the radiation and temperature of snow and the convection of the air at its surface. Observations at Abisko in January 1916. Stockholm. 1918. cover-title, 18 p. tables. 22 cm. (Arkiv för matematik, astronomi och fysik . . . Band 13. No. 21.) Literature, p. 17-18.

Arrhenius, Svante [August].

The destinies of the stars: authorized tr. from the Swedish by J. E. Fries. New York [etc.] 1918. xvii, 256 p. plates. (part. fold.) 19 $\frac{1}{2}$ cm. [Chapter 3.—The climatic importance of water vapour. 4.—Atmosphere and physics of the stellar bodies. 5.—The chemistry of the atmosphere.]

Batavia. Magnetisch en meteorologisch observatorium.

. . . Observations made at secondary stations in Netherlands East-India . . . Vol. 4-5. (1914-1915.) Batavia. 1917-1918. 2v. tables. 37 cm.

Observations made at the Royal magnetical and meteorological observatory at Batavia . . . Vol. 37, 1914 . . . Batavia. 1918. xxvi, 116 p. charts. tables. 36 $\frac{1}{2}$ cm.

Chamber of commerce of the United States of America.

Relation of weather and business in regard to rainfall. Washington. 1919. 12 p. charts. 27 $\frac{1}{2}$ cm.

Harvard travellers club.

Handbook of travel. Cambridge, Mass. 1917. 3 p. l., 544 p. plate. illus. tables. diagrs. 18 cm. [Meteorological observations, by R. DeC. Ward, p. [451]-472.]

Harvey, R[odney] B[eecher].

Hardening process in plants and developments from frost injury. Washington. 1918. plates. charts. tables. 26 cm. (Reprinted from Journal of agricultural research. Vol. 15, No. 2, p. 83-111.) Literature cited, p. 108-111.

Leverett, Frank.

Surface geology and agricultural conditions of Michigan; with a chapter on climate by C. F. Schneider. Lansing, Mich. 1917. 223 p. 23 $\frac{1}{2}$ cm. (Michigan geological and biological survey. Publication 25. Geological series 21. Published as part of the Annual report of the Board of geological survey for 1917.)

Lourenço Marques. Observatório Campos Rodrigues.

Relatório. Ano de 1917. Volume 9. Lourenço Marques. 1918. 102 p. incl. tables. 38 $\frac{1}{2}$ cm. At head of title: Província de Moçambique. Serviços de Marinha.

Lundblad, Ragnar.

A theory of the pyrgeometer of Ångström. Stockholm. 1918. cover-title, 10 p. 22 cm. (Arkiv för matematik, astronomi och fysik . . . Band 13. No. 7. Meddelande från Uppsala universitets fysiska institution.)

McEwen, George F[rancis].

Oceanic circulation and its bearing upon attempts to make seasonal weather forecasts. A sketch of observational methods and explanations. 20 p. 23 $\frac{1}{2}$ cm. (Bulletin of the Scripps institution for biological research of the University of California. No. 7. [La Jolla, Cal.] 1918.) Bibliography, p. 19-20. [Largely historical.]

Maryland. Geological survey.

The geography of Maryland, by W. B. Clark. Baltimore. 1918. 5 p. l., [41]-167 [4] p. illus. maps. diagrs. 25 $\frac{1}{2}$ cm. (Special publication, volume 10, part 1.) [Climate, p. 99-101.]

Mysore. Meteorological dept.

Report on rainfall registration in Mysore for 1917 . . . Bangalore. 1918. 1 p. l., xvii, 53 p. charts (part. fold.). tables. 31 $\frac{1}{2}$ cm.

Salter, Carle.

The relation of rainfall to configuration. [London] 1918. cover-title, 37 p. charts (part. fold.). tables. 22 cm. At head of title: The institution of water engineers. [cf. pp. 33-41, M. W. R., Jan., 1919.]

Seeley, D[ewey] A[lsdorf].

The length of the growing season in Michigan. charts. tables. 23 cm. (Reprinted from the 20th Report of the Michigan academy of science [Lansing, Mich.] 1918. p. [223]-232.)

Shaw, [William] Napier.

Memorandum on atmospheric visibility. [London] 1918. 16 p. charts. 23 $\frac{1}{2}$ cm. (Published for the Naval meteorological service, Hydrographical dept., Admiralty.) [Abstr. to be published in Feb. Review.]

RECENT PAPERS BEARING ON METEOROLOGY AND SEISMOLOGY.

C. FITZHUGH TALMAN, Professor in charge of Library.

The following titles have been selected from the contents of the periodicals and serials recently received in the library of the Weather Bureau. The titles selected are of papers and other communications bearing on meteorology and cognate branches of science. This is not a complete index of all the journals from which it has been compiled. It shows only the articles that appear to the compiler likely to be of particular interest in connection with the work of the Weather Bureau.

American journal of science. New Haven. v. 47. February, 1919.

Winchell, A. N., & Miller, E. R. Further notes on the dustfall of March 9, 1918. pp. 133-134. [cf. M. W. R., Nov., 1918.]

Aviation. New York. v. 6. February 15, 1919.

Tucker, Frank T. Winds and the transatlantic flight. p. 85.

Franklin institute. Journal. Philadelphia. v. 187. February, 1919.

Shelton, F. H. Windmills, picturesque and historic. p. 171-198.

Journal of geography. New York. v. 18. February, 1919.

Palmer, Andrew H. Water power in California. p. 41-53.

London, Edinburgh, and Dublin philosophical magazine. London. v. 37. January 1919.

Jeffreys, Harold. On travelling atmospheric disturbances. p. 3-8.

McLeod, A. R. On the lags of thermometers with spherical and cylindrical bulbs in a medium whose temperature is changing at a constant rate. p. 134-144.

Nature. London. v. 102. January 16, 1919.

Shaw, Napier. Clinograph charts. p. 383.

Dines, W[illiam]H[enry]. Some temperature anomalies. pp. 384-385.

Dines, J[ohn] S[omers]. Cyclones. p. 385.

- Physico-mathematical society of Japan. Proceedings. 3rd ser. v. 1. January, 1919.*
- Aichi, Keiichi. On the new method of reduction of observations of underground temperatures. p. 2-7.
- Science. New York. v. 49. 1919.*
- Humphreys, W[illiam] J[Jackson]. Some recent contributions to the physics of the air. p. 155-163; 182-188. (Feb. 14, 21.) [Cf. M.W.R., Dec., 1918.]
- Scientific American supplement. New York. v. 87. 1919.*
- Cloud, W.S. A South Carolina meteor. p. 87. (Feb. 8.) [Repr. from Monthly Weather Review. Discusses meteorological features.]
- Thomas, J. S. G. Hot wire anemometry, its principles and applications. p. 106-107. (Feb. 15.) [Cf. p. 21 of Jan., 1919, M. W. R.]
- Jakl, Vincent E. Notes on kite flying for meteorological observations. p. 110-112. (Feb. 15.) [Repr. from Monthly Weather Review, suppl. 13.]
- Scottish meteorological society. Journal. 3rd ser. v. 17. 1917.*
- Douglas, C. K. M. The lapse-line and its relation to cloud formation. p. 133-147.
- Fairgrieve, H. McCallum. The use of the climograph as a test for weather. p. 148-155.
- Mitchell, A. Crichton. On the diurnal incidence of maximum and minimum temperatures at Eskdalemuir. p. 156-165.
- Smellie, James, and Watt, Andrew. On a curious case of "ground ice." p. 166-173.
- Scottish meteorological society. Journal. 3rd ser. v. 18. 1918.*
- Douglas, C. K. M. The upper air: some impressions gained by flying. p. 3-12.
- Aitken, John. Ground ice. p. 13-18.
- Mossman, R. C. The climate and meteorology of antarctic and subantarctic regions. p. 18-29.
- Franklin, T. Bedford. Note on the fluctuations of mean sea-level in relation to variations in barometric pressure. p. 30-31.
- Sismological society of America. Bulletin. Stanford university. v. 8. December, 1918.*
- Watson, Thomas L. The Virginia earthquake of April 9, 1918. p. 105-116.
- Hazard, D. L. The relation between seismic and magnetic disturbance. p. 117-124.
- Saderra Masó, Miguel. Great earthquake and tidal wave in southern Mindanao, P. I. p. 125-126.
- Morgan, P. G. The New Zealand earthquake of August 6, 1917. p. 127-128.
- Aftershocks of the San Jacinto earthquake of April 21, 1918. p. 131-134.
- Symons's meteorological magazine. London. v. 53. 1918.*
- Bonacina, L. C. W., & Giblett, M. A. Ashdown forest climatology p. 89. (Sept.)
- Dines, W[illiam] H[enry]. The water contents of the atmosphere in relation to heavy rainfall. p. 95-97. (Oct.)
- Martin-Smith, A. S. Waterspout cloud effect. p. 97-98. (Oct.)
- Martin-Smith, A. S. Cloud forms. p. 110-111. (Nov.)
- Harding, Cha[rles]. Influenza and weather in London. p. 112-113. (Nov.)
- Académie des sciences. Comptes rendus. Paris. Tome 163. 1919.*
- Hubert, Henri. Sur la superposition des courants aériens au-dessus de la presqu'île du Cap Vert (Sénégal). p. 99-102. (Jan. 13.)
- Académie des sciences—Continued.*
- Mesnard, Eugène. Sur l'origine et le groupement des phénomènes météorologiques. p. 102-105. (13 jan.)
- Mathias, E. La pluie en France. Le phénomène parasite. p. 105-108. (13 jan.) [Discusses certain factors of rain-gage exposure.]
- Somigliana, Carlo. Sur la théorie des ondes sismiques. p. 108-111. (13 jan.)
- Brazier, E. Influence de la vitesse du vent sur la distribution verticale et les variations des éléments météorologiques dans les couches basses de l'atmosphère. p. 179-182. (20 jan.)
- Mathias, E. La pluie en France. Calcul des anomalies et du coefficient d'altitude. p. 239-242. (27 jan.) [See p. 41, M.W.R., Jan., 1919.]
- Aérophile. Paris. 26 année. 1918.*
- Lainé, André. Données élémentaires sur le plafond d'un avion. p. 264-265. (1-15 sept.) [The "ceiling" (plafond) of an airplane is the highest level it is able to attain.]
- Frantzen, Lucien. Cartes de l'air. p. 335-337. (1-15 nov.)
- Nature (La). Paris. 47 année. 1919.*
- Boyer, Jacques. Un thermomètre pour aveugles. p. 424. (11 Jan.) [Cf. Sci. Am., Jan. 25, 1919, p. 80.]
- B., A. La canonnade et la pluie. p. 227. (25 jan.)
- Beiträge zur Geophysik. Leipzig. 14. Band. 4. Hft. 1918.*
- Egerváry, Eugen v. Über die seismischen Trajektorien und über das Bertrandische Problem in der Seismologie. p. 284-299.
- Harboe, E. G. Die Bestimmung der Lage des Zentrums eines Fernbebens vermittelst der Pilgrimschen Laufzeittabellen. p. 300-317.
- Friedlaender, Immanuel. Über die Nachbebenstöße des Erdbebens vom 13. Januar 1915 in Avezzano. p. 318-326.
- Physikalische Zeitschrift. Leipzig. 19. Jahrgang. 1918.*
- Meissner, Otto. Die Jahresperiode der mikroseismischen Bewegung. p. 1-2. (1 Jan.)
- Hess, Victor F., & Schmidt, Wilhelm. Über die Verteilung radioaktiver Gase in der freien Atmosphäre. p. 109-114. (15 März.)
- Gockel, A. Über die Ursache der Zunahme der Ionisation der Atmosphäre mit der Höhe. p. 114-115. (15 März.)
- Walter, B. Über die Ermittlung der zeitlichen Aufeinanderfolge zusammengehöriger Blitze sowie über ein bemerkungswerten Beispiel dieser Art von Entladungen. p. 273-279. (1 Juli.)
- Meissner, Otto. Vergleichung der mikroseismischen Bewegung in die Bilt, Potsdam und Pulkova. p. 355-357. (15 Aug.)
- Meissner, Otto. Die Wärmedämmung. p. 387-388. (1 Sept.) [Investigation of an alleged recurrent rise of temperature shortly before sunrise.]
- Meissner, Otto. Temperatur- und Regenveränderlichkeit in Berlin. p. 521-524. (1 Dez.)
- Hencl en dumpiring. Den Haag. 16 jaarg. November, 1918.*
- E[verdingen], E. van. Waarnemingen van de schuine bogen van Lowitz. p. 97-100.
- Società sismologica italiana. Bollettino. Modena. v. 21. no. 1-2. 1917-1918.*
- Oddone, Emilio. Il terremoto dell'alta valle del Tevere del 26 aprile 1917. 9-27.
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- Agameanone, G. Sul periodo sismico dei monti Albani nel febbraio 1906. p. 47-101.